Water Resources Division
Resource Management Directorate
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Your file - Votre référence
2AM-MEL1631
Our file - Notre référence
GCDocs#105971091

September 23, 2022

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Reply to AEM Response on the 2021 Annual Report for Meliadine Gold Mine Project, Type A Water Licence No. 2AM-MEL1631

Dear Mr. Dwyer,

Thank you for your September 16, 2022 invitation to reply to Agnico Eagle Mines' (AEM's) response to CIRNAC's comments on the 2021 Annual Report for the Meliadine Gold Mine Project, Type A Water Licence No. 2AM-MEL1631.

CIRNAC-01: Higher than Expected Total Dissolved Solids (TDS) in Containment Pond 1 (CP1) (Follow-up from 2020 report comment #1)

Recommendation(s):

- Establish a program to measure runoff quantity and quality from Ore Stockpile 2 (OP2);
- Provide additional details and discussion of the OP2 component of the water balance model;
- Provide additional information on actual quantities and the physical and chemical nature of ore stockpiled in OP2 with emphasis on TDS loadings to CP1.

CIRNAC Comment to AEM Answer:

AEM has committed to implementing a monitoring program to measure runoff quantity and quality of TDS from Ore Stockpile 2 (OP2) for the 2022 open water season. CIRNAC is satisfied with this AEM's commitment as well as the additional details provided on the water balance model and the nature of TDS loading into CP1 from Ore stockpile in OP2.

CIRNAC look forward to reviewing the monitoring program results in future Annual Reports.

CIRNAC-02: Surface Disposition of Waste Rock (Follow-up from 2020 report comment #3)

Recommendation: Provide additional discussion on where/how waste rock was used for construction, where/how it was placed in the Waste Rock Storage Facilities (WRSFs) and Tailings Storage Facilities (TSF) and confirmation that it was placed according to approved plans and procedures.

CIRNAC Comment to AEM Answer:
CIRNAC is satisfied with AEM's answer. Recommendation-02 is resolved.

CIRNAC-03: Tailings Storage Facility (TSF) Capacity (Follow-up from 2020 report comment #4)

Recommendation: Provide additional information verifying that tailings placement was in accordance with the Mine Waste Management Plan.

CIRNAC Comment to AEM Answer: AEM has committed to provide a statement in future annual reports indicating that tailings placement are in accordance with the Mine Waste Management Plan. CIRNAC acknowledges this AEM's commitment.

CIRNAC-04: Tracking Volume of Freshwater Obtained from Other Permitted Locations for Road Dust Suppression Activities (Follow-up from 2020 report comment #10)

Recommendation: Include more detailed information regarding the locations of small ponds proximal to the All-Weather Access Road (AWAR), from which water is taken for dust suppression, as well as the breakdown of the monthly and annual volumes of freshwater obtained from each of these locations.

CIRNAC Comment to AEM Answer: AEM states that in 2021, no water was taken from ponds proximal to the AWAR for use as a dust suppressant. CIRNAC is satisfied with AEM's answer. Recommendation-04 is resolved.

CIRNAC-05: Quantities of Ore Production and Storage

Recommendation(s):

- Discuss and clarify apparent discrepancies in information provided for ore storage in 2021 (1,950,544 tonnes mined vs. 1,714,892 tonnes of tailings deposited);

- Provide maximum tonnes of ore stored on site in any month in 2021;
- Provide maximum tonnes of ore stored in OP2 in any month in 2021;
- Provide descriptions and discussions of “ore stockpiles on site, excluding major locations” presented in Table 12 of Section 4.3, Waste Rock Volume, and show where this ore is stored.

CIRNAC Comment to AEM Answers: CIRNAC is satisfied with AEM’s answers. Recommendation-05 is resolved.

CIRNAC-06: Quantities of Waste Rock Production and Storage

Recommendation(s):

- Clarify discrepancies in waste rock production reported in the body of the Annual Report and Mine Waste Management Plan;
- Provide descriptions and discussions of “waste rock stockpiles on site excluding major locations” presented in Table 12 of Section 4.3, Waste Rock Volume.

CIRNAC Comment to AEM Answers: CIRNAC is satisfied with AEM’s answers. Recommendation-06 is resolved.

CIRNAC-07: Management Plans

Recommendation(s):

Mine Waste Management Plan (MWMP):

- Update Tables 3.3, 4.1, 4.2 so that the actual quantities are clearly identified with an asterisk (*);
- Provide information illustrating actual vs. Final Environmental Impact Statement (FEIS) predicted quantities of overburden, waste rock and tailings;
- Include an as built plan or as built sections of the TSF for each year of the report.

Ore Storage Management Plan (OSMP):

- Update OSMP so that the actual quantities are clearly identified with an asterisk (*);
- Provide information illustrating actual vs. FEIS predicted quantities of ore stored annually;
- Assess the modelled and actual runoff quality, quantity and TDS loads from the ore storage area and investigate whether viable alternatives to surface runoff from the ore storage to CP1 could be developed so as to reduce TDS levels in CP1 and discharge to Meliadine Lake.

Water Management Plan (WMP):

- Replace the Site Location and Mine Site Layout dated 1-22-2020 of Appendix A of the Meliadine Groundwater Management Plan (GMP), which is Appendix A of the WMP.

CIRNAC Comment to AEM Answers: CIRNAC is satisfied with AEM's answers. Recommendation-07 is resolved.

CIRNAC-08: Inspection Reports and/or Compliance Reports

Recommendation: In future Annual Reports, provide an appendix containing reports of all formal inspections/compliance carried out during the reporting year.

CIRNAC Comment to AEM Answer: CIRNAC is satisfied with AEM's answer. Recommendation-08 is resolved.

CIRNAC-09: Geotechnical Inspection Concerns/Issues

Recommendation(s):

- Add a section to the Geotechnical Inspection Report that provides clear and concise information on the status of any permafrost degradation that may be occurring on site;
- Continue monitoring of soft ground conditions in 2022 between CP6 and WRSF to determine if additional waste rock is needed to mitigate associated risks;
- Carry out repairs at AWAR Culvert 25.8 km and Culvert 26.8 km during open water season 2022;
- Carry out repairs at Bridge M- 5 during open water season 2022.

CIRNAC Comment to AEM Answers: CIRNAC is satisfied with AEM's answers. Recommendation-09 is resolved.

CIRNAC-10: Impacts of Effluent Discharge on Phytoplankton in Meliadine Lake

Recommendation: Given the recent observation of algal blooms in Meliadine Lake, which is a clear indication that something is affecting the phytoplankton community in Meliadine Lake, CIRNAC recommends that AEM should conduct additional studies to determine the root cause of the algal blooms and determine whether the impact is the direct result of effluent discharge to Meliadine Lake.

CIRNAC Comment to AEM Answer: CIRNAC is not satisfied with AEM's answer. For example, AEM states that"

"Since 2015, phytoplankton biomass in the east basin of Meliadine Lake (near-field area) has measured between 300 and 450 mg/m3. The phytoplankton community has consistently been more abundant in the east basin compared to the mid-field and reference areas before and after Agnico Eagle started discharging effluent to Meliadine Lake in 2018. Chlorophyll-a concentrations, which are another indicator of primary productivity, have trended higher at the near-field and mid-field areas since 2015"

"Prior to 2018, discharge to Meliadine Lake came from the sewage treatment plant at the Exploration Camp and the temporary diffuser installed in 2016 to dewater Lake H17 to create CP1. Sewage from the Exploration camp, specifically phosphorus, was implicated in higher primary productivity during the pre-construction and construction phase (Golder, 2019)"

It is concerning to CIRNAC that AEM confirms evidence of abundant increases in both the phytoplankton biomass and chlorophyll-a concentrations in sections of Meliadine Lake. While failing to acknowledge that the increases may be associated with exploration activities that are gradually transforming a naturally oligotrophic lake like Lake Meliadine into an eutrophic lake. The above quotes are an indication of potential algal-blooms just beginning to gather momentum in Meliadine Lake. Unless proper adaptive management plans are put into place, there will be negative ecological impacts to Meliadine Lake.

Further, CIRNAC notes that both the sewage discharge activity (that AEM has identified as the main source of phosphorus addition to Meliadine lake ecosystem) and mine process wastes (i.e., contact water/effluent) are by-products of AEM's mining activities in Meliadine. Therefore, AEM's attention should be directed toward reducing increases in phytoplankton biomass and chlorophyll-a concentrations by addressing the root causes of these algal-blooms in Meliadine Lake.

CIRNAC maintains its initial recommendation (CIRNAC-10: Impacts of Effluent Discharge on Phytoplankton in Meliadine Lake) requesting that AEM conduct additional studies to determine the root cause of the algal-blooms and whether the impact is a direct result of effluent and/or sewage discharges into Meliadine Lake.

CIRNAC appreciates the opportunity to participate in this review. If there are any questions, please contact John Onita at john.onita@rcaanc-cirnac.gc.ca; or (867) 975-3876 or Andrew Keim at (867) 975-4550 or andrew.keim@rcaanc-cirnac.gc.ca

Sincerely,

John Onita
Regional Water Coordinator, CIRNAC